NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

JANUARY 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

SCROD COD MORE ABUNDANT ON GEORGES BANK IN 1985

Scrod cod will be more abundant on Georges Bank during 1985 than at any time since 1982, according to the Center's 1984 autumn bottom trawl survey. Survey catches of age 1 cod (i.e., the 1983 year class which will recruit to the Georges Bank fishery as "scrod" during 1985) were the highest since autumn 1981, and the fifth highest since the mid-1960's. This potential for above-average recruitment from the 1983 year class was first recognized in autumn 1983 when catches of young-of-the-year cod were among the highest observed in the history of the survey series. Contact Fred Serchuk, FTS 840-1245 or (617) 548-5123.

MID-ATLANTIC SURF CLAM LANDINGS INCREASE, BUT RESOURCE REMAINS ABUNDANT

Surf clam landings in the Fishery Conservation Zone increased to about 52 million pounds of meats during 1984, up 15 percent from 1983. Including landings from inshore areas, the 1984 total was about 62 million pounds, the highest since 1975.

The Center's surf clam surveys indicate continued abundance of Mid-Atlantic clams due primarily to the very strong 1976 and 1977 year classes off New Jersey, Maryland, and Virginia. The 1983 year class off central New Jersey appears to be the strongest since 1977, but a thorough evaluation of the strength of that year class must await future surveys. Regardless, known resources appear adequate to support current harvest levels until the early 1990's. Contact Steve Murawski, FTS 840-1303 or (617) 548-5123.

SCALLOP LANDINGS CONTINUE DECLINE; FISHING ACTIVITY SHIFTS SOUTH

Preliminary data for 1984 indicate a decline in American and Canadian sea scallop landings from Georges Bank, the Mid-Atlantic, and the Gulf of Maine to 9,900 metric tons of meats, the lowest harvest in 10 years. Landings from Georges Bank (4,800 tons) were the lowest since 1948, with the American landings (2,850 tons) the lowest since 1975. American landings from the Mid-Atlantic (4,000 tons) increased 24 percent from 1983; American landings from the Gulf of Maine (800 tons) decreasd by 11 percent. The Mid-Atlantic increase reflects a shift by some vessels from fishing Georges Bank/Gulf of Maine to fishing the Mid-Atlantic; and an increase by many vessels in their number of trips and number of days per trip when fishing the Mid-Atlantic.

The Center's sea scallop surveys in recent years indicate declines in abundance in almost all areas fished by the American fleet. The 1984 survey indicates that with the exception of the northern edge and northeast peak regions of Georges Bank (now mostly in Canadian waters) and the New York Bight region (off Long Island and New Jersey), abundance is now at historically low levels. Fishing mortality is now near historically high levels, and the fishery strongly depends upon recruitment of new year classes.

Because of the relative scarcity of scallops in American waters on Georges Bank and the current exclusion of American fishermen from Canadian waters on the Bank, the American fleet will likely continue to concentrate its activity in the Mid-Atlantic during 1985. Contact Fred Serchuk, FTS 840-1245 or (617) 548-5123.

REPORT AVAILABLE ON NEW BEDFORD SEA SCALLOP FISHERY

The Center has prepared a brief report on the New Bedford, Massachusetts, sea scallop fishery. The report shows the port accounting for more than half of the American scallop landings and revenues. New Bedford's 1983 landings generated 58 million dollars in ex-vessel prices, about 2.5 percent of the total of all American fisheries. For copies of the report, contact Fred Serchuk, FTS 840-1245 or (617) 548-51234.

EXPERIMENTAL HEAT PUMP CUTS COSTS FOR SEAFOOD PROCESSORS

Energy use can be a major cost in operating seafood processing plants, especially for those plants that heat large open work areas and that have large refrigeration systems. The Center has developed and tested an experimental heat pump to make use of heat that might otherwise be lost or be discharged from such plants. This experimental energy conservation system appears to significantly cut energy costs. Contact Bob Van Twuyver, FTS 837-9319 or (617) 281-3600.

CENTER ASSISTS IN CONTAMINATED WATER DIVE

In mid-December, the Environmental Protection Agency (EPA) sought the assistance of the Center in searching an abandoned coal strip mine pond near McAdoo, Pennsylvania, for suspected drums containing hazardous wastes. The Center provided one diver-scientist with experience in diving in contaminated environments. The EPA, U.S. Coast Guard, and NOAA Diving Office also supplied a diver apiece with similar experience. No drums were found in the highly acidified (i.e., pH of 3.5) pond.

NOAA is the lead federal agency for developing equipment, methods, knowledge, etc., for diving in contaminated environments. Consistent with and supportive of NOAA's role, the Center has several diver-scientists with various levels of experience in diving in polluted fisheries habitats, and can provide advice -- and sometimes assistance depending upon the circumstances -- for diving in such habitats. Contact Cliff Newell, FTS 840-1215 or (617) 548-5123.

DECAPOD CRUSTACEAN BOOK RECEIVES RAVE REVIEWS

Shrimps, Lobsters, and Crabs of the Atlantic Coast of the Eastern United States, Maine to Florida, authored by the National Systematics Laboratory's Austin Williams and published by the Smithsonian Institution Press in 1984, has received rave reviews. Lawrence G. Abele, writing in the *American Zoologist*, says "What a treasure -- keys, illustrations, notes on morphology and ecology, and other information for 342 species of decapod crustaceans known from eastern North American.... The volume is a steal at $40.00. Anyone working in any aspect of decapods must have this volume at hand." Contact Bruce Collette, FTS/(202) 357-2524.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

FEBRUARY 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

PCB LEVELS MAY BE DECREASING IN LONG ISLAND SOUND

The Center's analyses of livers from windowpane flounders netted near Charles Island in Long Island Sound in October 1984 showed a marked decrease in polychlorinated biphenyl (PCB) levels when compared with windowpane netted there during 1980-82. The 1980-82 livers had mean PCB levels of 0.6-2.3 ppm; the 1982 livers alone had a mean level of 0.9 ppm. The October 1984 livers had a mean level of 0.5 ppm. This difference is statistically significant and suggests that PCB levels may be decreasing in Long Island Sound. Contact Fred Thurberg, FTS 642-5244 or (203) 783-4200.

BLEAK OUTLOOK FOR YELLOWTAIL FLOUNDER

The Center's just completed 1985 winter survey of yellowtail flounder off Southern New England indicates a bleak outlook for this resource. This survey was a continuation of the cooperative winter survey series run by the fishing industry, the Rhode Island Division of Fish and Wildlife, and the Center during 1980, 1981, and 1983. The 1985 survey showed abundance lower than at any time since these surveys began. Catches of prerecruit yellowtail were also low, indicating that recruitment to this year's fishery will be poor. There appears to be little chance for improvement in this resource in the near future. Contact Steve Clark, FTS 840-1312 or (617) 548-5123.

FISHING PRESSURE INCREASES ON COD; DECREASED STOCKS ANTICIPATED

An assessment of 1984 U.S. commercial fisheries data and 1984 Center bottom trawl survey data for the Georges Bank and Gulf of Maine Atlantic cod stocks indicates that fishing mortality has markedly increased on both stocks. Since 1981, fishing mortality on cod has doubled on Georges Bank and quadrupled in the Gulf of Maine. In both stocks, the rates are the highest in over 20 years, exceeding even those when foreign fleets were exploiting New England waters in the mid-1960's.

This increased fishing mortality stems from increased fishing effort on cod as other fisheries resources (e.g., haddock, redfish, and yellowtail flounder) have declined. The current levels of fishing mortality are much in excess of the levels producing the maximum yield per recruited fish, and should they continue, further declines in cod abundance are anticipated. Contact Fred Serchuk, FTS 840-1245 or (617) 548-5123.

STONE CRABS FOUND TO HAVE TWO POPULATIONS

The stone crab, *Menippe mercenaria* (Say), ranges in the Western North Atlantic from Cape Lookout, North Carolina, to the Greater Antilles and Belize, and around the perimeter of the Gulf of Mexico in shallow subtidal depths to a maximum of 50 meters. According to data published in 1984, the U.S. fishery for this crab -- mainly along the west coast of Florida -- has grown from reported landings of 752,000 pounds and 233,000 dollars in 1964 to 3,274,000 pounds and 3,071,000 dollars in 1977.

Studies now indicate distinct differences both in color and in larval and adult morphology between a stone crab population in the northern Gulf of

Mexico and another population in the rest of the range. The National Systematics Laboratory is evaluating the systematic status of these populations in collaboration with D.L. Felder of the University of Southwestern Louisiana. Contact Austin Williams, FTS/(202) 357-2639.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

MARCH 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

VIRUS EPIDEMIC IN RARITAN BAY'S WINTER FLOUNDER

Contractors for the Northeast Monitoring Program have found an epidemic of lymphocystis disease in Raritan Bay's winter flounder. Daily samples showed between 78 and 94 percent of the flounders with evidence of the disease -- small pearl-like growths on the fins and skin. Common terms for the disease are "seedy flounder" or "scabby flounder."

Lymphocystis is a viral disease, is not usually fatal to fish, and runs its course in about 24 weeks in otherwise healthy fish. The virus seems to be induced by stress such as that which accompanies spawning activity. The disease is specific for fish and does not harm humans or affect edibility of the flounder -- an important point considering the major recreational fishery for winter flounder in Raritan Bay. Contact Joanne Stolen or Robert Reid, FTS 342-8200 or (201) 872-0200.

POPULATION-CRIPPLING DISEASE FOUND IN MASSACHUSETTS OYSTERS

At the request of the Commonwealth of Massachusetts, the Center examined oysters from West River, Massachusetts, for MSX *(Haplosporidium nelsoni)* disease. Forty-eight percent of the samples had this population-crippling disease.

Because Wellfleet Harbor, Massachusetts, is the only other area in that state where MSX is known to cause significant oyster kills, the West River outbreak may have been caused by the introduction of oyster seed purchased from other states. Such introductions, either intentional or unintentional, of nonnative organisms (with the potential for those organisms to carry debilitating diseases) looms as one of the long-term problems in fisheries management. In cooperation with Massachusetts and other New England states, the Center is attempting to identify possible sources of any contaminated seed in the West River area. Contact Fred Kern, (301) 226-5193.

COPPER AND CADMIUM MAY AFFECT SCALLOP RECRUITMENT

In the laboratory, we have found that in clean, flowing seawater, the weight of sea scallop gametes (eggs and sperm) increased by 100 percent during gonad maturation. However, in water laced with 20 ppb of copper, the gamete weight decreased by 67 percent. In water with 10 ppb of copper, the gamete weight initially decreased by 33 percent, but then increased to recover its initial weight. But, if similarly low levels of cadmium are also in the water, even the recovery is prevented.

The bottom line is that a number of urban centers abutting the Gulf of Maine (a body of water with important inshore scallop grounds) regularly dump treated and untreated municipal wastes and sewage sludge which often contains copper and cadmium at levels well above our laboratory test levels. Contact Edith Gould, FTS 642-5222 or (203) 783-4222.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

APRIL 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

A RESURGENCE OF GEORGES BANK HERRING?

We collected postlarval (30-40 mm) Atlantic herring at three locations on eastern Georges Bank during the April MARMAP survey. This is the second consecutive year that we have located young herring on the once-productive Georges Bank spawning beds which have now been dormant since the 1970's. Although preliminary observations indicate that catch numbers were low, their mere presence is encouraging. We must await the fall and winter surveys before evaluating the spawning success. However, because of the widespread catches of large larvae -- larger than we would expect to catch in our fine-meshed plankton nets unless they were relatively abundant -- there is a glimmer of optimism among Center scientists that a resurgence of the Georges Bank herring stock may be underway. Contact Wallace Smith, FTS 342-8260 or (201) 872-0200.

MACKEREL EGG MORTALITY -- INDICATED BY CHROMOSOME ABNORMALITIES -- AGAIN ASSOCIATED WITH COASTAL POLLUTION

Similar to earlier studies based on a few sample sites, a recent study based on the many sample sites of a 1979 MARMAP survey shows a trend in Atlantic mackerel embryos of higher frequencies of chromosome abnormalities with closer proximities to nearshore polluted areas. This is the fourth year class of mackerel in which genetic indicators of egg mortality have been associated with coastal pollution. Contact Dean Perry, FTS 642-5215 or (203) 783-4215.

ULCER OUTBREAK CONTINUES IN ATLANTIC COAST MENHADEN

The outbreak of ulcer disease in Atlantic menhaden and other estuarine species which began 1984 appears to be persisting into 1985. Reports from the field indicate that this disease is now present in fish from Florida to upper Chesapeake Bay. The population impacts of this disease cannot yet be determined, but surveillance continues. Contact Aaron Rosenfield, (301) 226-5193.

SCALLOP AQUACULTURE SUFFERS SETBACK IN PERU

Perhaps because of El Nino, the Peruvian coast south of Lima now has an abundant supply and active fishery for a scallop, *Argopecten purpuratus*, similar to our bay scallop. To increase the harvest, Peruvian aquaculturists have been collecting seed and growing scallops in net enclosures in Paracas Bay. The aquacultural harvest last year returned three million dollars. Earlier this year, the Peruvian aquaculturists stocked 500 million seed on 1,300 hectares of leased bay bottom, expecting a return of 24 million dollars.

However, anoxia occurred during March, partly due to an illegal dumping of 8,000 metric tons of rotting fish into the bay, which depleted the bay's bottom oxygen. All scallops perished. A Center scientist, in Peru for a symposium on mollusk culture, observed the damage firsthand, and made preliminary recommendations on studies of the bay's carrying capacity and anoxic conditions. Contact Edwin Rhodes, FTS 642-5226 or (203) 783-4226.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

MAY 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

ARE TUNAS AND MACKERELS HIGHLY MIGRATORY ?

Under the Magnuson Act, any "highly migratory" species cannot be unilaterally managed by the United States within its Fishery Conservation Zone. Consequently, the question of whether a given species is highly migratory or just highly mobile is important to fisheries interests.

In this context, the 36th Tuna Conference, held at Lake Arrowhead, California, during May 21-24, addressed the *scientific* aspect of this question for tunas and their relatives (family Scombridae). National Systematics Laboratory Director Dr. Bruce B. Collette began the conference with an overview of the distribution patterns of tunas and their relatives, and convened a session on distribution. Four distributon patterns were recognized: worldwide (12 species), oceanwide (6 more-shore-associated species), one side of an ocean (13 coastal species), and restricted distributions within the Indo-Pacific (18 species). Only a few species of tunas, such as the bluefin, southern bluefin, albacore, and perhaps the bigeye, seem truly migratory, although some individuals of other species of tunas, such as skipjack and yellowfin, may move large distances at times. Contact Dr. Bruce B. Collette, FTS 357-2524 or (202) 357-2524.

NO RADIOACTIVITY HAZARD IN MASSACHUSETTS BAY SEDIMENTS & BENTHIC ORGANISMS

In 1981 and 1982, the Center collected sediment and benthic organisms from a Massachusetts Bay dumpsite where radioactive wastes had been previously deposited. The EPA analyzed these samples and concluded that radioactivity in the sediments and benthic organisms, including fish and larger invertebrates, was not above natural or "ambient" levels. Contact Frank W. Steimle, Jr., FTS 342-8259 or (201) 872-0200.

WALLEYE (ALASKA) POLLOCK PRODUCTS NEED IMPROVEMENT

The U.S. Department of Commerce's Northeast Inspection Service has concerns over the quality of some fishery products made from walleye or Alaska pollock (*Theragra chalcogramma*) and sold in the Northeast. The Center has concerns too, not only over the effect of less-than-desirable quality walleye pollock products on the marketing, sales, and consumption of those products, but also, through "guilt by name association," on the marketing, sales, and consumption of the Northeast's traditional Atlantic pollock (*Pollachius virens*) products.

Accordingly, the Center evaluated five products made from walleye pollock: fillets from a frozen layer pack, raw breaded center cuts, raw breaded fillets, raw breaded nuggets (small pieces), and breaded precooked nuggets. Our sensory panel scored all products as "liked slightly" to "moderately liked," except the breaded precooked nuggets which were "liked moderately" to "liked very much." Results show that the flavor and texture of most products need improvement. Contact Burton L. Tinker, FTS 837-9217 or (617) 281-3600.

U.S.-SPAWNED SALMON MAKE UP LARGER SHARE OF CANADIAN CATCH IN FALL & EARLY WINTER

During a May 6-8 meeting in Bangor, Maine, the International Council for the Exploration of the Sea's (ICES) Working Group on Atlantic Salmon reviewed tagging data collected by the Maine Atlantic Sea-Run Salmon Commission since 1970. Meeting participants found that U.S.-spawned salmon are being caught by Canadians throughout their June to December fishing season, and that the proportion of the catch made up of U.S.-spawned fish jumps significantly during September to December. The heaviest catches in the Canadian coastal fishery come from northeastern Newfoundland.

The North Atlantic Salmon Conservation Organization (NASCO) requested the ICES meeting, in part, because of U.S. concerns that the level of catches in the Canadian coastal fishery could prevent the United States from effectively restoring and maintaining its spawning stocks. NASCO will consider the meeting's findings in setting regulations for the Canadian coastal fishery. Contact Anne M.T. Lange, FTS 840-1301 or (617) 548-5123.

ICES NAMES CENTER SCIENTIST AS STATISTICIAN

The International Council for the Exploration of the Sea (ICES) recently named the Center's Dr. Emory D. Anderson as its new Statistician. Anderson assumes his new post on August 1 at ICES headquarters in Copenhagen, Denmark. Contact Dr. Michael P. Sissenwine, FTS 840-1239 or (617) 548-5123.

AFS'S NORTHEAST DIVISION INSTALLS CENTER SCIENTIST AS PRESIDENT

The American Fisheries Society's Northeast Division recently installed the Center's Dr. Fredric M. Serchuk as its new President. The installation occurred at the Division's annual meeting during May 6-8 in Hartford, Connecticut. Contact Dr. Michael P. Sissenwine, FTS 840-1239 or (617) 548-5123.

MILFORD LABORATORY HOLDS OPEN HOUSE

The Center's Milford (Connecticut) Laboratory held an open house on May 16. About 2,000 people, including 500 inner-city school children, visited the facility. Attractions included an introductory slide show, a chat with "Oliver the Talking Oyster," a touch tank where live animals could be picked up and examined, and numerous displays on research activities. Contact Sheila Stiles or Edwin W. Rhodes, Jr., FTS 642-5200 or (203) 783-4200.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

JUNE 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.

Deputy Center Director (Acting).....Dr. Merton C. Ingham

Conservation and Utilization Division Chief (Acting).....Dr. Michael P. Sissenwine

Fisheries Ecology Division Chief (Acting).....Dr. Kenneth Sherman

Environmental Processes Division Chief.....Dr. John B. Pearce

National Systematics Laboratory Director.....Dr. Bruce B. Collette

Research Planning and Coordination Staff Chief.....Richard C. Hennemuth

Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
(202) 357-2552 & FTS 357-2552

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193

"MONTHLY HIGHLIGHTS" & BIMONTHLY REPORT" COMBINED

The Center has combined its "Monthly Highlights" with its "Bimonthly Report" to create an expanded "Monthly Highlights." The merger begins with this issue. Those who formerly received the "Bimonthly Report" will now receive the "Monthly Highlights" instead. A key part of the old "Bimonthly Report," the listing of the Center's recent scientific publications and reports, will continue in the new "Monthly Highlights", but only in every third issue (i.e., quarterly). Contact Jon A. Gibson, FTS 840-1228 or (617) 548-5123.

DRAFT NATIONAL ARTIFICIAL REEF PLAN AVAILABLE

The National Fishing Enhancement Act of 1984 requires that a National Artificial Reef Plan be developed to guide artificial reef builders and managers. Copies of the draft plan--to which Center personnel contributed--are available from Richard B. Stone, National Marine Fisheries Service, Room 420, Page Building 2, 3300 Whitehaven Street, N.W., Washington, DC 20235. (Mark envelope "National Artificial Reef Plan".) Contact Frank W. Steimle, Jr., FTS 342-8259 or (201) 872-0200.

U.S. ATLANTIC SALMON SUFFER SETBACK AT "CONSERVATION" MEETING

During the second annual meeting of the North Atlantic Salmon Conservation Organization (NASCO) in Edinburgh, Scotland, during June 3-7, no management measures were adopted by any of the three Regional Commissions--North American, West Greenland, or North East Atlantic. The United States had proposed that the North American Commission close the commercial interception fishery off Labrador and Newfoundland from September 1 to December 31. This closure would reduce Canada's annual total Atlantic salmon catch by approximately one percent, but would reduce the interception of those salmon returning to U.S. homewaters by about 23 percent.

Canada would not agree to the U.S. proposal because she failed in the West Greenland Commission to get a reduction in the 870-metric-ton total allowable catch in the West Greenland fishery which would have further protected Canadian-origin salmon. The U.S. delegation rejected, as contrary to the intent of the NASCO treaty, Canada's linking the developments in one Commission to those in another Commission. However, opportunities have been left open for further discussions prior to the opening of the commercial interception fishery. Further U.S. diplomatic efforts are underway to urge Canada to reconsider her position. Contact Dr. Vaughn C. Anthony, FTS 840-1304 or (617) 548-5123.

COOPERATIVE SURVEY BEGINS FOR PELAGIC GAMEFISH CATCHES IN THE NORTHEAST

The Center, in cooperation with seven other organizations, has begun a survey to estimate catches and obtain biological samples from tunas, billfishes, and sharks in the Northeast. Data come from random telephone and dockside interviews and from coverage of selected sportfishing tournaments from New York to Virginia. Survey results to date indicate that during May little offshore fishing occurred. Through mid-June, though, fishing picked up with sharks the primary target and catch from Maryland north, and school bluefin tuna the target and catch in Virginia. Contact Darryl J. Christensen, FTS 342-8241 or (201) 872-0200.

VIRAL EPIDEMIC IN RARITAN BAY'S WINTER FLOUNDER CONTINUES; RECREATIONAL FISHING INDUSTRY HURT

In the March issue we reported an epidemic of lymphocystis in Raritan Bay's winter flounder. Lymphocystis is a highly infectious viral disease which appears as pearl-like tumors on the skin and fins. It usually does not kill the fish but leaves it weakened and more vulnerable to predation. In the past three months we have examined 1,700 flounders from this area; between 75 and 100 percent of the fish from each sample have been infected. They are underweight and apparently not feeding. The area's party boat captains are now reporting significantly smaller catches than in previous years.

Both the duration and intensity of this epidemic suggest that a stress-inducing factor is behind this disease outbreak, perhaps chemical contamination. The Center continues to monitor the epidemic in the field, examine the immune response of the fish in the lab, and evaluate habitat quality. Contact Stuart J. Wilk, FTS 342-8201 or (201) 872-0200.

OIL-RICH FISH REAFFIRMED AS HEALTH FOOD

The National Marine Fisheries Service, together with the National Institutes of Health and the National Fisheries Institute, sponsored an international conference on the role of fish oil in human health in Washington, D.C., during June 24-26. More than 125 preeminent biochemists met to review research to date and to suggest directions for new research. The conference reaffirmed that oil in finfish and shellfish may help ward off heart disease, stroke, arteriosclerosis, and inflammatory diseases.

As a backdrop to the conference, one of the Northwest Atlantic's most oil-rich seafood species, the Atlantic mackerel, remains the region's most underutilized resource for the U.S. fishery. At the beginning of 1985, the stock was estimated to be more than 2.6 billion pounds, with the total catch for the year expected to be less than six percent of that biomass. Contact Jon A. Gibson, FTS 840-1228 or (617) 548-5123.

EDIBILITY CHARACTERISTICS DEVELOPED FOR SEVERAL NORTHWEST ATLANTIC GROUNDFISH

A hurdle to increasing domestic consumption of nontraditional seafood species involves having consumers rely less on the market names (e.g., scrod, lemon sole) of fishery products and more on the edibility characteristics (e.g., firm, mild) of such products--particularly if the market names are unfamiliar or unappealing. Accordingly, the federal government is developing an edibility "profile" (e.g., texture, flavor) of each actual and potential seafood species.

The Center has recently developed such profiles for the flavor and texture of silver hake, "scrod" Atlantic cod, goosefish, and Atlantic wolffish. We made two profiles for each species, for storage on ice of one day and six days after being caught. The six-day-old iced samples approximate fish available in supermarkets. Preliminary results show only a slight difference in the one-day-old and six-day-old samples. Contact Joseph M. Mendelsohn, FTS 837-9242 or (617) 281-3600.

ATTACK & COUNTERATTACK ON SQUID AS SEAFOOD

A mid-June article in the *Boston Herald* newspaper severly criticized the eating of squid. The author said squid had a rubbery texture and little use other than fish bait. We wrote a letter to the editor rebutting some of the arguments raised in the article and offered to furnish recipes for delicious squid dishes. The public response surprised us because it was so swift and voluminous. Letters are still pouring in requesting recipes. Copies of the recipes are still available. Contact Vincent G. Ampola, FTS 837-9285 or (617) 281-3600.

CENTER ANNUAL REPORT AVAILABLE

The Center has issued its 1984 "End-of-Year Report." The report contains a two-page overview of the major issues in marine fisheries research last year, and a listing of one-sentence descriptions of those Center research activities which produced information directly and immediately usable by one or more of our constituent groups. Copies are available. Contact Jon A. Gibson, FTS 840-1228 or (617) 548-5123.

WOODS HOLE LAB CELEBRATES CENTENNIAL; HOLDS RESEARCH & MANAGEMENT FORUMS

The Center's Woods Hole Laboratory is 100 years old. The Lab's centennial celebration will feature two forums on August 15 ("Fisheries Research Strategy for the Future" and "Fisheries Management Strategy for the 1980's and Beyond") and a Lab rededication on August 16.

Participants in the research forum will be: Carl R. Sullivan, Moderator (Executive Director, American Fisheries Society); Dr. Peter Larkin (Professor, University of British Columbia); Dr. John L. McHugh (Professor, State University of New York); Dr. Gilbert C. Radonski (President, Sport Fishing Institute); and Dr. William F. Royce (international fisheries consultant, Seattle, Washington). Participants in the management forum will be: Richard H. Schaefer, Moderator (Northeast Regional Director, National Marine Fisheries Service); Alan D. Guimond (Chairman, New England Fishery Management Council); Robert L. Martin (Chairman, Mid-Atlantic Fishery Management Council); Jeff Pike (Assistant to U.S. Representative Gerry E. Studds); Dr. Gilbert C. Radonski; and Lucy Sloan (Executive Director,

National Federation of Fishermen.

Among dignitaries attending the rededication ceremony will be: Dr. Anthony J. Calio (Acting Administrator, NOAA); William G. Gordon (Assistant Administrator for Fisheries, NOAA); and higher-level federal officials as circumstances permit. Contact Dr. Marvin D. Grosslein, FTS 840-1252 or (617) 548-5123.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

JULY 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.

Deputy Center Director (Acting).....Dr. Merton C. Ingham

Conservation and Utilization Division Chief (Acting).....Dr. Vaughn C. Anthony

Fisheries Ecology Division Chief (Acting).....Dr. Michael P. Sissenwine

Environmental Processes Division Chief.....Dr. John B. Pearce

National Systematics Laboratory Director.....Dr. Bruce B. Collette

Research Planning and Coordination Staff Chief.....Richard C. Hennemuth

Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
(202) 357-2552 & FTS 357-2552

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193

STATES FUNDED FOR IMPROVED ASSESSMENT OF CHESAPEAKE BAY FISHERIES RESOURCES

To better assess Chesapeake Bay's fisheries resources, NOAA has funded cooperative research agreements with the Maryland Department of Natural Resources, the Virginia Institute of Marine Science, the District of Columbia, and Pennsylvania State University. The funding -- about 855 thousand dollars total -- will yield about two years of research in which : (1) the District of Columbia will survey the fisheries resources available to its urban anglers; (2) the Maryland Department of Natural Resources and the Virginia Institute of Marine Science will determine the short- and long-term factors affecting mortality of the Bay's key recreational and commercial species (striped bass, spot, blue crab, American oyster, etc.), as well as upgrade its data bases on fisheries statistics; and (3) Pennsylvania State University will statistically analyze the data gathered by the others. The Center will coordinate all research.

This research, which will complement the recent federal effort to begin restoring Chesapeake Bay's economic, recreational, and environmental attributes, should ultimately help us sort out the reasons (fishing, pollution, habitat degradation, and natural environmental/biological factors) for population changes in the Bay's key species. Contact Dr. John G. Boreman, Jr., FTS 840-1225 or (617) 548-5123.

HAGFISH TABBED AS MAJOR PROBLEM FOR DEEPWATER LOBSTERING

Using a NOAA-chartered research submersible, the Harbor Branch Foundation's Johnson-Sea-Link, the Center has confirmed its suspicions that hagfish can be a major problem in the deepwater lobster fishery. During four dives in late June at Jordan Basin (Central Gulf of Maine), Center scientists observed hagfish -- primitive eel-like creatures closely related to sea lampreys -- consuming up to 90 percent of the bait (usually redfish or Atlantic herring "racks") within 24 hours from commercially fished lobster traps. Amphipods, crabs, and shrimps also came into the traps to finish off the bait. We obtained excellent videotapes and photographs to document this hagfish activity.

This bait loss from deepwater traps either creates a major problem or raises a serious question. On the one hand, it creates a major problem if the presence of bait in the traps is essential for attracting lobsters. A typical deepwater lobsterman will set about 1,000 traps, filling them with about 1,000 dollars of bait, and hauling them every week. If hagfish are consuming 90 percent of the bait soon after the trap is set, then current baiting practices are very inefficient.

On the other hand, it raises a serious question if the traps are effectively fishing more than 85 percent of the time (i.e., six out of seven days) with little or no bait. In fact, earlier underwater observations by Center scientists, as well as fishing experiences by some Long Island offshore lobstermen, suggest that deepwater lobsters are attracted to traps not because of the bait, but because of the shelter they can provide on an otherwise featureless bottom. Contact Joseph R. Uzmann, FTS 840-1272 or (617) 548-5123.

CENTER ADVISES ON CONTROLLING DISEASE OUTBREAK IN SHELLFISH HATCHERY

The Center has advised a commercial shellfish hatchery on controlling a disease outbreak in its juvenile stock. First, we identified the disease agent -- the marine bacterium Pseudomonas. Second, we suggested remedial actions which included: (1) removing ammonia (used as a nitrate source) from the hatchery's algal culture system to prevent Pseudomonas from replicating; and (2) disinfecting the culture tanks and water pipes to keep the bacterium from reappearing. Contact Dr. Walter J. Blogoslawski, FTS 642-5235 or (203) 783-4235.

TECHNICAL WORKSHOP HELD ON STOCK ASSESSMENT

During July 8-12, the Center held its first technical workshop on stock assessment. Sixty-five attended, representing seven Northeast state marine fisheries agencies, the New England and Mid-Atlantic Fishery Management Councils, the Northeast Regional Office, and the Center. The workshop reviewed the adequacy of 33 species or species groups assessments, assigned a priority to each assessment, identified future assessment research needs, discussed cooperation between federal and state agencies in upgrading assessments of mutual interest, and suggested new ways to conduct assessments.

Bluefish received a surprisingly high ranking for future assessment research, not only because of its current importance to the Northeast's fishermen (principally recreational), but because of the relative lack of assessment-type data on it. Contact Dr. Vaughn C. Anthony, FTS 840-1304 or (617) 548-5123.

CENTER TRAINS INDONESIANS IN FISHERY TECHNOLOGY

The Center recently trained four food technologists and technicians of Indonesia's Research Institute for Fish Technology. During the two-week training program, the Center demonstrated techniques in fish processing & storage, refrigeration, fish quality, microbiology, and sanitation. We also arranged for the Indonesians to tour Gloucester, Massachusetts, fish processing plants and the Massachusetts Shellfish Depuratin Plant at Plum Island. Contact Robert J. Learson, FTS 837-9313 or (617) 281-3600.

RECENT PUBLICATIONS AND REPORTS

(Reprints of the following publications and copies of the following reports are available upon written request to: Information Services Section, Northeast Fisheries Center, Water Street, Woods Hole, Massachusetts 02543.)

Colton, J.B., Jr., J.L. Anderson, J.E. O'Reilly, C.A. Evans-Zetlin, and H.G. Marshall. 1985. The shelf/slope front south of Nantucket Shoals and Georges Bank as delineated by satellite infrared imagery and shipboard hydrographic and plankton observations. NOAA Tech. Mem. NMFS-F/NEC-38. 28 pp.

Higgins, B.E., R. Rehfus, J.B. Pearce, R.J. Pawlowski, R.L. Lippson, T. Goodger, S.M. Roe, and D.W. Beach. 1985. Regional action plan: Northeast Regional Office and Northeast Fisheries Center. NOAA Tech. Mem. NMFS-F/NEC-37. 93 pp.

Lange, A.M.T., and J.E. Palmer. 1985. USA historical catch data, 1904-82, for major Georges Bank fisheries. NOAA Tech. Mem. NMFS-F/NEC-39. 24 pp.

Laurence, G.C., and R.G. Lough. 1985. Growth and survival of larval fishes in relation to the trophodynamics of Georges Bank cod and haddock. NOAA Tech. Mem. NMFS-F/NEC-36. 166 pp.

Lough, R.G., G.R. Bolz, M. Pennington, and M.D. Grosslein. 1985. Larval abundance and mortality of Atlantic herring (Clupea harengus L.) spawned in the Georges Bank and Nantucket Shoals areas, 1971-78 seasons, in relation to spawning stock size. J. Northw. Atl. Fish. Sci. 6: 21-35.

Norton, V.J., M.M. Miller, and E. Kenney. 1985. Indexing the economic health of the U.S. fishing industry's harvesting sector. NOAA Tech. Mem. NMFS-F/NEC-40. 47 pp.

Pearce, J.B., C.R. Berman, Jr., and M.R. Rosen, eds. 1985. Annual NEMP report on the health of the Northeast coastal waters, 1982. NOAA Tech. Mem. NMFS-F/NEC-35. 79 pp.

Sinclair, M., V.C. Anthony, T.D. Illes, and R.N. O'Boyle. 1985. Stock assessment problems in Atlantic herring (Clupea harengus) in the Northwest Atlantic. Can. J. Fish. Aquat. Sci. 42(5): 888-898.

Valdimarsson, G., H. Einarsson, and F.J. King. 1985. Detection of parasites in fish muscle by a candling technique. J. Assoc. Off. Anal. Chem. 68(3): 549-551.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

AUGUST 1985

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities in the preceding month. These accounts focus on the practical applications of research findings to fisheries resource and habitat conservation. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.

Deputy Center Director (Acting).....Dr. Merton C. Ingham

Conservation and Utilization Division Chief (Acting).....Dr. Vaughn C. Anthony

Fisheries Ecology Division Chief (Acting).....Dr. Michael P. Sissenwine

Environmental Processes Division Chief.....Dr. John B. Pearce

National Systematics Laboratory Director.....Dr. Bruce B. Collette

Research Planning and Coordination Staff Chief.....Richard C. Hennemuth

Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
(202) 357-2552 & FTS 357-2552

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193

NORTHERN SHRIMP SURVEY COMPLETED; PROSPECTS FOR WINTER FISHERY THE SAME OR BETTER THAN LAST YEAR

Center scientists and personnel from the Maine Department of Marine Resources, the New Hampshire Fish & Game Department, and the Massachusetts Division of Marine Fisheries completed the 1985 Gulf of Maine northern shrimp survey during August 6-16 aboard the Center R/V *Gloria Michelle*. Catches were highest off the central Maine coast from the Casco Bay - Jeffreys Ledge region eastward to Penobscot Bay and, as in preceding years, catches were dominated by shrimp hatched in 1982. Production appears to have been poorer in more recent years, although high catches of one-year-old shrimp were observed in some areas. Prospects for the 1985-86 winter fishery appear the same or better than those for 1984-85, particularly off the central Maine coast. Contact Dr. Stephen H. Clark, FTS 840-1312 or (617) 548-5123.

GEORGES BANK NOW CONTRIBUTING SIGNIFICANTLY TO SURF CLAM FISHERY

On July 25, the new surf clam fishery on Georges Bank concluded its first year as a commercial fishery. (Last year it was an "experimental" fishery.) Fishermen harvested almost 300 thousand bushels of surf clams since the beginning of the year -- about 10 percent of the Northeast's total harvest. Particularly important were the more than five million pounds of meats worth more than two million dollars in ex-vessel prices landed in Massachusetts -- an industry for that state that didn't exist two years ago.

The Center continues to monitor the Georges Bank surf clam populations and fishery as part of its stock assessment efforts. In the past 12 months, the Center has conducted its biennial surf clam/ocean quahog research vessel survey (which includes Georges Bank), has sampled catches at sea on commercial vessels (which include three vessels fishing Georges Bank surf clams), and since the beginning of the year has sampled landings at all major fishing ports where surf clams are landed (which include Provincetown and New Bedford, Massachusetts, where hundreds of clams have been statistically sampled from 18 vessel landings). Contact Dr. Steven A. Murawski, FTS 840-1303 or (617) 548-5123.

MULTISPECIES ASSESSMENT OF GEORGES BANK GROUNDFISH COMPLETED

The Center has completed a multispecies assessment of four key stocks -- Atlantic cod, haddock, pollock, and yellowtail flounder -- in the Georges Bank bottom trawl fishery. The purpose of this joint assessment was to determine the likely responses of these stocks in the next several years to possible fishery management changes such as larger mesh sizes, more area closures, and more effort restrictions.

The assessment suggests that if fishery managers seek to rebuild depleted stocks such as haddock and yellowtail flounder by reducing fishing mortality rates, then they would need to reduce overall fishing effort significantly. Further, the assessment suggests that any recovery of haddock and yellowtail could lead to catch reductions in cod and pollock. Contact Dr. William J. Overholtz, FTS 840-1256 or (617) 548-5123.

SUMMARY PREPARED FOR FLOUNDER RESOURCES ON THE "TAIL" OF THE GRAND BANKS

For the past half year, some American fishermen have been fishing the "Tail of the Bank" section of the Grand Banks of Newfoundland. The Tail of the Bank is a portion of the continental shelf which lies beyond the Canadian 200-mile limit, and thus, beyond Canadian fisheries jurisdiction. The Tail of the Bank does fall under the jurisdiction of the Northwest Atlantic Fisheries Organization for those nations who are members -- the United States isn't a member though. Consequently, the Tail of the Bank is international waters with no fisheries regulations for American fishermen.

To determine if the benefits of the potential harvests from the Tail of the Bank outweigh the costs of steaming to and from the area (about four days each way), New England fishermen recently requested the Center to assess the potential yields, current landings, and catch rates for flounder resources in that area. Using Canadian Department of Fisheries and Oceans scientific documents, the Center has summarized the requested information for American plaice, yellowtail flounder, and witch flounder. A significant amount -- more than 40 million pounds -- of American plaice remain unharvested from what the Canadians have determined to be that area's harvestable surplus. Contact Ralph K. Mayo, FTS 840-1310 or (617) 548-5123.

OFFSHORE NORTHWEST ATLANTIC FISH SCORE WELL DURING HEALTH EXAM

To monitor the health of offshore Northwest Atlantic fish, Center scientists recorded the incidence of external lesions and anomalies in those fish being processed for age & growth analysis during the second and third legs of this past spring's bottom trawl survey. We examined 6,459 fish, comprising 15 species, trawled from water normally deeper than 90 feet on Georges Bank, Nantucket Shoals, and the Gulf of Maine.

Eight species (silver hake, red hake, white hake, redfish, witch flounder, windowpane, fourspot flounder, and butterfish) were free of external lesions and anomalies. The other seven species (Atlantic cod, haddock, pollock, yellowtail flounder, American plaice, winter flounder, and summer flounder) had very low incidences.

Overall, prevalences of these non-life-threatening external lesions and anomalies were well under one percent for the 15 species surveyed. The health of these Northwest Atlantic offshore fish appears good and attests to a wholesome product. Contact Dr. Robert A. Murchelano, (301) 226-5193.

EDIBILITY PROFILES DETERMINED FOR HERRING, REDFISH, AND TUNA

As part of the Center's ongoing program to determine the edibility "profiles" of seafood species, we have just completed profiles of the flavor and texture of Atlantic herring, redfish, and bluefin tuna. For both herring and redfish, we made one profile for those fish held on ice for one day, and another for those held on ice for six days. Preliminary results show only a slight difference in the one-day and six-day iced samples.

For tuna, we made one profile for the head section and another for the tail section. The tail section had a much more "gamey" flavor than the head section. Contact Burton L. Tinker, FTS 837-9217 or (617) 281-3600.

NOAA AND EPA LAUNCH JOINT RESEARCH OF NORTHEAST'S ESTUARIES

With a Congressional mandate, NOAA and EPA recently signed a cooperative agreement for environmental research of the Northeast's estuaries. Research will focus on effects of physical and chemical degradation of estuarine habitats on major fish and invertebrate stocks. Long Island Sound, Narragansett Bay, and Buzzards Bay will be the first estuaries to be studied. Under the agreement, EPA will coordinate the research which will be conducted by states, universities, and NOAA (principally the Northeast Fisheries Center and the NOAA Ocean Assessment Division). Contact Helen Mustafa, FTS 840-1244 or (617) 548-5123.

CAUSE OF LARVAL DIE-OFF AT CONCH HATCHERY IDENTIFIED AND CORRECTED

During August 5-12, the Center investigated a major die-off in a commercial hatchery for Caribbean conchs (*Strombus gigas*). All three-day-old conch larvae were dying within 24 hours. Our preliminary research identified the cause of the die-off as the shellfish pathogen *Vibrio alginolyticus*, and found the pathogen in nearby seawater, inside seawater pipes, and in conch eggs.

The hatchery adopted the Center's recommendations to solve the immediate problem: treating all hatchery pipes with sodium hypochlorite solution, and dipping the conch egg masses in antibiotics. The Center also made recommendations to prevent future die-offs (e.g., weekly cleaning of seawater lines, using selective microbiological culture media to detect the pathogen's presence, installing an available ultraviolet disinfection system, handling diseased larvae and their rearing tanks in a sanitary manner), and gave a seminar to all hatchery employees on prevention and control of this bacterial disease. Contact Dr. Walter J. Blogoslawski, FTS 642-5235 or (203) 783-4235.

WOODS HOLE LABORATORY CENTENNIAL HELD; MANAGEMENT FORUM DEALS WITH CONTROVERSIAL ISSUES

During August 13-16, the Center's Woods Hole Laboratory -- the world's first facility to be specifically built for and dedicated to fisheries research -- celebrated its centennial. Centennial activities included: five public lectures on marine fisheries and the Laboratory's role in their development; two public forums on the future of fisheries research and management; a formal rededication ceremony; two public and one invited receptions; and a seafood luncheon.

A highlight of the celebration was the August 15 forum on the future of fisheries management. Key government, industry, recreational, and academic leaders in North American fisheries dealt with several management issues, including: (1) the decreasing chances for any new federal legislation or additional funding for marine fisheries in the foreseeable future; (2) the increasing role of marine recreational fisheries in the management process; and (3) the increasing discussion of controls on the number of harvesters of marine fisheries resources, much the same way there are now controls on the number of harvesters of other common property resources under federal stewardship (timber, minerals, etc.).

Verbatim proceeding of the lectures, forums, and ceremony will eventually be published. Anyone wishing to reserve a copy should request such --*in writing* -- from Dr. Marvin D. Grosslein, National Marine Fisheries Service, Northeast Fisheries Center, Woods Hole, MA 02543.

NEW METHOD DEVELOPED TO AGE SOFT-SHELL CLAMS

Center scientists have developed a new method to determine the age of two species of soft-shelled clams (*Mya arenaria* and *M. truncata*). The method uses acetate "peels" of radially sectioned chondrophores (the part of the shell which anchors the hinge cartilage).

Preliminary results from using the new method have yielded distinct age/growth lines. We will next attempt to verify the accuracy of this method by using it on known-age specimens. Contact John W. Ropes, FTS 840-1287 or (617) 548-5123.

COMPUTER PROGRAM DEVELOPED TO MAP SEA SCALLOP SURVEY CATCHES

We have developed a computer program which maps research vessel survey catches of sea scallops within each of our standard sea scallop sampling "strata," or zones, on the Northeast continental shelf. These maps should greatly clarify the catch-per-strata data in future issues of the Center's sea scallop stock assessment documents. Contact Dr. Fredric M. Serchuk, FTS 840-1245 or (617) 548-5123.

Information Services Section
Northeast Fisheries Center
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543

POSTAGE AND FEES PAID
U.S. DEPARTMENT OF COMMERCE
COM-210

FIRST CLASS MAIL

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

SEPTEMBER 1985

29

IN THIS ISSUE:

The Northeast Fisheries Center's "Monthly Highlights" is a selection of brief popularized accounts of Center research activities during the month. These accounts focus on practical applications of research findings to fisheries resource and habitat management. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.

Deputy Center Director.....Vacant

Conservation and Utilization Division Chief .....Dr. Vaughn C. Anthony

Fisheries Ecology Division Chief .....Dr. Michael P. Sissenwine

Environmental Processes Division Chief.....Dr. John B. Pearce

National Systematics Laboratory Director.....Dr. Bruce B. Collette

Research Planning and Coordination Staff Chief.....Richard C. Hennemuth

Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
(202) 357-2552 & FTS 357-2552

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193

FIRE DAMAGES CENTER'S SANDY HOOK LABORATORY

A fire in the early morning of September 21 leveled one of the two buildings comprising the Center's Sandy Hook (New Jersey) Laboratory. None of the 35 Laboratory personnel who normally worked in the burned building were hurt. Several firefighters received only slight injuries.

The Sandy Hook Laboratory is the site for a significant amount of the Center's research for habitat management. Also, because of its location, the Laboratory is the source for some of the Center's data on the fisheries of coastal New York and New Jersey.

Losses due to fire include: (1) chemistry labs, instruments, samples, and data; (2) behavior aquaria, equipment, specimens, and data; (3) benthic ecology labs and data; (4) life history data for major Mid-Atlantic fish and invertebrate stocks; (5) reference collections and data for fish eggs and larvae; (6) survey data for fish distribution and abundance in the New York Bight area; (7) statistical data on the Northeast's fisheries; and (8) a 35,000-volume research library.

Center officials are dealing with the short-term problem of how to recover essential data and provide emergency working conditions for Laboratory personnel. Administration and Congressional officials are joining Center officials in dealing with the longer-term problem of how to restore research capabilities.

For more information, contact Anne L. Studholme, FTS 342-8200 or (201) 872-0200.

LARGER SIZE LIMITS PROPOSED FOR STRIPED BASS

A committee of the Atlantic States Marine Fisheries Commission (ASMFC) has proposed larger size limits for striped bass.

The Center participated in a recent meeting of the ASMFC's Scientific & Statistical Committee on Striped Bass which was held, among other things, to determine what size limits would protect the 1982 and later year classes until 95 percent of their females had a chance to spawn at least once. The conclusion of the September 10 and 11 meeting in Annapolis, Maryland, was 33 inches by fall 1986 and 37 inches by fall 1987. The Commission currently recommends states to have a 24-inch limit in their coastal fisheries.

Dominant year classes maintain the Atlantic Coast's migratory stock of striped bass. The last such year class -- the largest in 30 years -- was the 1970 year class of the stock's Chesapeake Bay population. The 1982 year class of the Chesapeake Bay population, although it's below the long-term average, is nonetheless slightly stronger than other recent year classes. The ASMFC is trying to protect this and later year classes to increase the chances for successful spawning.

For more information, contact Anne M. Lange, FTS 840-1301 or (617) 548-5123.

JUVENILE SEA SCALLOP ABUNDANCE IMPROVES IN MID-ATLANTIC

Preliminary results of the Center's 1985 summer sea scallop survey indicate that juvenile sea scallop abundance in the Mid-Atlantic (Long Island to Cape Hatteras) has markedly increased from the low levels of the past four years. The 1985 survey abundance index of precommercial size scallops (less than 70-millimeter shell height) was the second highest in the 10-year scallop survey time series, and was three times higher than any of the 1981-84 survey indexes.

This increased abundance is due to successful recruitment of the 1982 year class, particularly in the New York Bight and Delmarva areas. The survey showed the greatest concentrations of this year class between Long Island and Maryland in depths between 25 and 40 fathoms. These scallops should reach commercial size (a 40-meat-per-pound count or lower) by the end of 1986 and the beginning of 1987.

For more information, contact Dr. Fredric M. Serchuk, FTS 840-1245 or (617) 548-5123.

ASSESSMENT OF RECENT CANADIAN REGULATIONS ON CANADIAN HARVEST OF U.S.-ORIGIN SALMON

Recent Canadian regulations may have slightly reduced the Canadian harvest of U.S.-origin Atlantic salmon.

The Center participated in a recent meeting of the International Council for the Exploration of the Sea's Atlantic Salmon Working Group, held to advise the North Atlantic Salmon Conservation Organization's North American Commission on the level of Canadian harvests of U.S.-origin salmon, and the impact of recent Canadian regulations in reducing those harvests. The recent Canadian regulations include closing several areas, shortening the length of the season in several areas, and reducing the amount of licensed fishing gear in Newfoundland and Labrador.

From the September 16-20 meeting in Woods Hole, the Working Group estimated that the closed areas and shortened seasons should have reduced the 1984 and 1985 Canadian harvests of U.S.-origin salmon by 11 percent. The Working Group could not estimate the impact of the gear reductions based on the available data. The North American Commission will use the Atlantic Salmon Working Group's conclusion in developing its management plans.

For more information, contact Dr. Vaughn C. Anthony, FTS 840-1304 or (617) 548-5123.

SEA SAMPLING SHOWS DOGFISH DISCARD HIGH, GROUNDFISH CATCH LOW

The Center conducted at-sea sampling on two Gloucester-based commercial fishing vessels during September.

The first trip -- a day-trip to Stellwagen Bank for spiny dogfish -- showed a 71 percent discard rate for small dogfish. Although the Northeast's population of spiny dogfish has a high abundance (estimated at more than 600 million pounds last year), it also has a low reproductive potential. (Mature females produce only an average of six live offspring every two years.) Since the fishery already selects large females (greater than 30 inches and five pounds) because of market conditions, there could be concern if such high discard rates of small dogfish became common in coming years. European studies of the Northeast Atlantic's dogfish fishery have shown that intense fishing for large females and high discarding of small fish have the potential to rapidly reduce dogfish populations.

The second sea sampling trip -- a five-day trip to Jeffreys Ledge for groundfish -- averaged only 542 pounds of landed catch per tow for the trip's 21 tows. Unfortunately, these very poor catches are typical of the current groundfish fishery. Discards averaged less than 100 pounds per tow and consisted mostly of skates with small amounts of Atlantic cod, haddock, silver hake, red hake, white hake, and flounders.

To begin obtaining discard data from Gloucester's small-mesh fishery on a regular basis, the Center has begun a program which involves cooperating Gloucester fishermen. Fisherman will randomly sample their discards and return the samples to the Center's fisheries statistics agent in Gloucester.

For more information, contact Thurston S. Burns, FTS 840-1309 or (617) 548-5123.

NAMES UPDATED FOR GULF-OF-MAINE FISHES

Since 1953, the basic reference for fisheries researchers in the Gulf of Maine has been *Fishes of the Gulf of Maine* by Henry B. Bigelow and William C. Schroeder. In those 32 years, though, our knowledge of the systematics and taxonomy of those fishes has improved, and the names of many fishes and categories of fishes have changed.

The Center and the Harvard University Museum of Comparative Zoology recently published a list of about 90 name changes which update the Bigelow and Schroeder text. Those persons who want to update their copies of the text should contact Dr. Bruce B. Collette, FTS/202 357-2552.

COMMON AND SCIENTIFIC NAMES COMPILED FOR NORTH AMERICAN CRUSTACEANS

A group of decapod crustacean specialists which includes a Center scientist, in collaboration with a committee of the American Fisheries Society (AFS), has prepared a draft list of common and scientific names of decapod crustaceans of America north of Mexico, including waters within 200 miles of the coast, but excluding islands of the West Indies. The list contains 410 true crabs, 336 shrimps, 318 lobsters and their relatives, and 274 hermit crabs and their relatives. A list of mollusks is also now in preparation.

Although the crustacean list is a draft for review, is incomplete, and is unavailable for general distribution, those persons whose work regularly requires such information (e.g., technical editors in fishery biology) can contact Dr. Austin B. Williams, FTS/(202) 357-2639.

CENTER'S GLOUCESTER LABORATORY HONORED

The 30th Annual Atlantic Fisheries Technological Conference celebrated the 25th anniversary of the Center's Gloucester (Massachusetts) Laboratory by holding a one-day "International Symposium on Fishery Technology" in the Laboratory's honor. About 230 people from 13 nations attended the Conference/Symposium; 82 papers were presented.

For more information on the proceedings of the Conference/Symposium, contact the Laboratory's Officer-in-Charge, Robert J. Learson, at FTS 837 9313 or (617) 281-3600.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

OCTOBER 1985

IN THIS ISSUE:

The Northeast Fisheries Center's Monthly Highlights is a selection of brief popularized accounts of Center research activities during the month. These accounts focus on practical applications of research findings to fisheries resource and habitat management. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.

Deputy Center Director.....Vacant

Conservation and Utilization Division Chief.....Dr. Vaughn C. Anthony

Fisheries Ecology Division Chief.....Dr. Michael P. Sissenwine

Environmental Processes Division Chief.....Dr. John B. Pearce

National Systematics Laboratory Director.....Dr. Bruce B. Collette

Research Planning and Coordination Staff Chief.....Richard C. Hennemuth

Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
Washington, DC 20560
(202) 357-2552 & FTS 357-2552

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193

LARGE YEAR CLASS OF GEORGES BANK HADDOCK

The Center captured relatively high numbers of age 0 haddock during August and October bottom trawl surveys of Georges Bank. The abundance index for age 0 haddock captured during the October 1985 survey is about the same as the abundance index for age 0 haddock captured during the October 1975 survey. That 1975 year class was the largest year class to recruit to the Georges Bank haddock fishery since the 1963 year class.

The abundance of the spawning stock of Georges Bank haddock has been at a very low level in recent years. If the 1985 year class proves to be as large as the 1975 year class, then the 1985 year class could begin to replenish the depleted spawning stock when it recruits to that spawning stock in 1988. However, the level of replenishment of the spawning stock would depend upon the level of fishing mortality on the 1985 year class in the interim. Contact Dr. Marvin D. Grosslein, FTS 840-1252 or (617) 548-5123.

ILLUSTRATED GUIDE TO LOBSTER TAILS

The National Systematics Laboratory has prepared an illustrated guide to the lobster tails in U.S. trade, and has submitted the guide to *Marine Fisheries Review* for publication. Since federal law requires the correct identification of imported lobster tails, the guide will aid the U.S. Customs Service, the Department of Defense, the Food and Drug Administration, and other federal agencies.

The guide identifies the clawed, spiny, flat, and squat lobsters in U.S. trade, summarizes catch information on a worldwide basis, and outlines species distributions on a worldwide basis. Contents include keys for identification, color descriptions, geographic & bathymetric summaries, common names, black & white drawings, and selected views of tails in color. Landings are summarized for species groups and regions, with an emphasis on domestic production. Contact Dr. Austin B. Williams, FTS/(202) 357-2639.

EDIBILITY PROFILES DETERMINED FOR POLLOCK AND SCROD

As part of the Center's ongoing program to determine the edibility "profiles" of seafood species, we have just completed profiles of the flavor and texture of pollock and "scrod" Atlantic cod. Such profiles are an effort to enhance the marketability of traditional seafood species, and to improve the marketability of less traditional seafood species, by emphasizing their table characteristics instead of their market names.

For both pollock and scrod, we made one profile for those held on ice for one day, and another for those held on ice for six days. Preliminary results show only a slight difference in the one-day and six-day iced samples. Contact Burton L. Tinker, FTS 837-9217 or (617) 281-3600.

METHOD DEVELOPED TO ENHANCE NUTRITIONAL VALUE OF ALGAE FED TO CULTURED BIVALVES

The Center has developed a way to control the levels of protein, carbohydrate, and lipid in algae that are being produced in bulk to feed bivalve mollusks. Manipulating the levels of these cellular components will aid in maximizing the production of cultured algal-feeding bivalves. This has application not only for research organizations such as the Center which produce large numbers of bivalves for experimentation, but also for private

hatcheries which produce large numbers for commerce.

Specifically, the Center experimented with various concentrations and ratios of nitrate and phosphate used to enrich the growth medium for two algal species, *Tetraselmis maculata* and *Dunaliella tertiolecta*. When phosphate was held constant, the amount of protein relative to carbohydrate increased linearly with increasing nitrate for both species. Also, although *T. maculata* always contained more lipid than *D. tertiolecta*, when nitrate was reduced, the amount of lipid could be increased in the latter species. Contact Dr. Ravenna Ukeles, FTS 642-5223 or (203) 783-4223.

EPIDEMIC OF INFECTIOUS SARCOMA DISEASE IN CHESAPEAKE BAY'S SOFTSHELL CLAMS

The Center continues to assess the intensity and geographic range of an epidemic of infectious sarcoma disease in Chesapeake Bay's softshell clams, and to evaluate the disease's effects on clam populations and the clam fishery. Findings thus far are that: (1) the disease first appeared in Chesapeake Bay in 1978; (2) circumstantial evidence suggests that the disease was introduced by human transfer of infectious material from elsewhere, perhaps New England; (3) occurrence is now widespread, encompassing most of the productive areas of the Bay; (4) prevalences are extremely high, up to 90 percent in some populations; and (5) cumulative mortality, hitting 87 percent in one year in one tested population, has significantly reduced production over the past two years.

This disease has the potential to severely reduce softshell clam harvest in the near future (landings have already decreased), and may lead to major recruitment failure due to brood stock reduction. Contact Austin C. Farley, (301) 226-5193.

MSX DISEASE IN CAPE COD OYSTERS

MSX disease, caused by the pathogen *Haplosporidium nelsoni*, has appeared among the oyster populations along the south shore of Cape Cod. MSX disease doesn't affect humans who eat infected oysters, but the disease has historically decimated oyster populations in some Mid-Atlantic estuaries.

At the request of the Commonwealth of Massachusetts, the Center examined samples of oysters from the south shore of Cape Cod where a large oyster die-off is now occurring. Ninety-two percent of the oysters had MSX. This oyster disease is new to that area and is probably causing the die-off.

The Northeast's recent drought has decreased freshwater runoff and increased saltwater concentrations in the region's estuaries. The higher salinity in many areas favors the spread of MSX and has exposed many oyster populations to this highly infectious disease for the first time. Contact Frederick G. Kern III, (301) 226-5193.

SLOW MATURITY OF SANDBAR SHARKS CONFIRMED BY RECAPTURE OF TAGGED FISH

The Center has now obtained reliable data, through its NMFS Cooperative Shark Tagging Program, on the slow maturity of the sandbar shark. In October, the Center received a whole sandbar shark that had been tagged off Long Island, New York, in 1968 and recently recaptured off Panama City, Florida. (This is the longest time at liberty yet for a shark marked with an "M"-dart tag.)

A sportsman had tagged the shark 17 years ago at an estimated length of 48 inches; the fish measured 73 inches at recapture. Postmortem examination

showed the shark to be an immature female approximately 23-years old.

This recapture, which provided valuable scientific information, was made possible by the combined efforts of volunteer sportsmen, tournament officials at Panama City, and NMFS biologists at the Panama City Laboratory. Contact John B. Casey, FTS 838-7142 or (401) 789-9326.

REVISION OF SPANISH MACKERELS

National Systematics Laboratory scientists Bruce B. Collette and Joseph L. Russo have published their worldwide revision of the Spanish mackerels and seerfishes of the genus *Scomberomorus*. The monograph was published in Volume 82, Issue 4, of the *Fishery Bulletin*. This revision should stabilize the nomenclature of the genus and lay the foundation for study of populations and stocks needed for proper management of the Spanish mackerels.

The monograph recognizes 18 species, including two discovered and named during the research. Each species account includes synonymies, diagnostic characters, an illustration of the species, morphometric data, distribution, geographic variation, and summaries of biology and fishery interests. There are detailed descriptions of external morphology, soft anatomy, and osteology. Numerous illustrations supplement the morphological descritions. Contact Dr. Bruce B. Collette, FTS/(202) 357-2524.

SPECIES-SPECIFIC EFFECTS OF LOW DISSOLVED OXYGEN LEVELS OFF NEW JERSEY

The Center's intensive monitoring of dissolved oxygen levels in the New York Bight has uncovered some apparent species-specific effects of the periodic extremely low dissolved oxygen levels in that area. The Center has conducted this monitoring in coordination with the NOAA National Ocean Service, U.S. Environmental Protection Agency, and the New Jersey Department of Environmental Protection since 1976 when a severe episode of low dissolved oxygen ("hypoxia") killed over 500-million dollars of shellfish in a 2000-square-kilometer area along the New Jersey coast. Less severe kills have occurred before and since 1976.

During an episode of hypoxia accompanied by warm bottom-water temperatures in a 200-square-kilometer area along the New Jersey coast during late August and early September, divers from the Center and the American Littoral Society made observations and collected samples at a shipwreck in the hypoxic area. The combination of hypoxia and warm temperature killed ocean pout, a primarily boreal species. Slightly more tolerant species such as the lobster, while affected by the hypoxia, appeared to have survived although they may have been more vulnerable to predation while debilitated. Other species such as black sea bass and red hake apparently departed the area temporarily. Contact John E. O'Reilly, FTS 342-8251 or (201) 872-0200.

ROLE OF ACIDIFICATION IN ANADROMOUS FISH DECLINE

The Center participated in a recent conference on "Acidification and Anadromous Fish of Atlantic Estuaries," sponsored by the Hudson River Foundation. The conference convened experts from many fields to evaluate the role of acidification in the decline of several anadromous species.

General conclusions of the conference were that: (1) in many cases, hard evidence is not available to definitively assess the impacts of acidification, although suggestive trends do exist -- acidification has been clearly shown to be important in only a few estuarine ecological systems; and (2) acidification

alone probably has not caused recruitment failure of anadromous fish, but interactions between pH and other environmental factors such as contaminants are probably very important. Contact R. Anne Richards, FTS 840-1243 or (617) 548-5123.

CENTER DISCUSSES INDUSTRY ECONOMICS AND SCALLOP OUTLOOK WITH SEAFOOD DEALERS

The Center made presentations on industry economics and the sea scallop outlook to the New Bedford (Massachusetts) Seafood Dealers Association on October 19. In the first presentation, which dealt with trends in landings, revenues, and imports of all of the Northeast's major species, the Center discussed how the purchasing power of owners, captains, and crew members has diminished significantly since 1978 due, in part, to increasing costs per pound of fish landed and to stability of deflated ex-vessel fish prices. Also discussed were the growth of imports -- particularly cod products -- and the shift from frozen processed products to fresh whole products.

In the second presentation, which dealt with the state of the sea scallop fishery, the Center discussed an anticipated increase in recruitment in the Mid-Atlantic area by the end of 1986 or beginning of 1987. Contact Dr. Philip N. Logan, FTS 840-1354 or (617) 548-5123.

NMFS HOLDS ECONOMICS WORKSHOP; CENTER DISCUSSES SURF CLAM FISHERY

The NMFS held a workshop on fisheries economics in Rockport, Masachusetts, during October 16-17. The Center outlined its bioeconomic model of the surf clam fishery. Participants from the NMFS Washington Office, Regional Offices, and Fisheries Centers, as well as from the Regional Fishery Management Councils and several universities, discussed such models, the problem of recruitment of surf clams, and the ability to model trends in fisheries. Also reviewed were ongoing economic studies in the Regions and Centers. Contact Dr. Philip N. Logan, FTS 840-1354 or (617) 548-5123.

NEW ENGLAND HOSTS U.S.-JAPANESE AQUACULTURE PANEL

During October 15-22, the United States-Japan Natural Resources Panel in Aquaculture held its 14th annual meeting in New England. Ten Japanese scientists and their U.S. counterparts met in Woods Hole for a symposium on advances in biology and engineering with potential for aquaculture, and heard presentations on genetic engineering, growth hormones, tissue culture, micro-encapsulated diets, gamete cryopreservation, and other subjects. The Panel also discussed coordination of joint projects dealing with a registry of marine pathology, importation of marine species, scientific exchanges, and literature exchanges, and also developed a five-year plan for future meetings.

Scientific and business proceedings will be published in the *NOAA Technical Report NMFS* series. Contact Edwin W. Rhodes, FTS 642-5226 or (203) 783-4226.

SANDY HOOK LABORATORY CELEBRATES 25TH ANNIVERSARY

On October 25, the Center's Sandy Hook Laboratory celebrated its 25th anniversary with an open house. The Laboratory hosted over 2,000 visitors with marine films, diver exhibits, a touch tank for children, and research displays. A popular attraction was cooking and tasting nontraditional species provided by the Fulton Fish Market of New York City.

Participants in the open house included the American Littoral Society, National Park Service, New Jersey Marine Science Consortium, Marine Academy of Science and Technology, and U.S. Coast Guard Pollution Response Team from Governor's Island, New York. Contact Cathy Noonan, FTS 342-8205 or (201) 872-0200.

RECENT PUBLICATIONS, REPORTS, AND PRESENTATIONS

Anthony, V.C., and D.J. Garrod. 1985. Attempts at effort regulation in the North Atlantic -- a review of problems. Paper presented at: Int. Counc. Explor. Sea, Fifth Dialogue Meet.; Oct. 4, 1985; London. 15 pp.

Anthony, V.C., and S.A. Murawski. 1985. Managing multispecies fisheries with catch quota regulations -- the ICNAF experience. Paper presented at: Int. Counc. Explor. Sea, Fifth Dialogue Meet.; Oct. 4, 1985; London. 17 pp.

Bergan, R.H., G.C. Laurence, C.A. Oviatt, and L.J. Buckley. 1985. Effect of thermal stratification on the growth and survival of haddock larvae (*Melanogrammus aeglefinus*). Int. Counc. Explor. Sea Comm. Mem. 1985/Mini-Symp. No. 6, Ref. Biol. Oceanogr. Comm.

Bodammer, J.E. 1985. Corneal damage in larvae of striped bass *Morone saxatilis* exposed to copper. Trans. Am. Fish. Soc. 114: 577-583.

Byrne, C.J., and M.J. Fogarty. 1985. Comparison of the fishing power of two fisheries research vessels. Northwest Atl. Fish. Organ. Sci. Counc. Res. Doc. 85/90.

Cohen, E.B., J.R. Green, D.C. Potter, and B.P. Hayden. 1985. Some preliminary results of juvenile cod and haddock studies on Georges Bank in 1984 and 1985. Int. Counc. Explor. Sea Comm. Mem. 1985/G:74, Sess. Q.

Collette, B.B. 1985. Distribution patterns of tunas and their relatives. Proc. 36th Annu. Tuna Conf.: 1. (Abstr.).

Collette, B.B., and K.E. Hartel. 1985. Fishes of the Gulf of Maine -- corregenda. Harvard Univ., Mus. Comp. Zool.; Cambridge, Mass. 3 pp.

Collette, B.B., and J.L. Russo. 1985. Morphology, systematics, and biology of the Spanish mackerels (*Scomberomorus*, Scombridae). Fish. Bull., U.S. 82(4): 545-692.

Goulet, J.R., Jr. 1985. Data management for analysis of large marine ecosystems. Int. Counc. Explor. Sea Comm. Mem. 1985/L:17, Ref. D.

Messieh, S.N., V.C. Anthony, and A. Sinclair. 1985. Fecundities of Atlantic herring (*Clupea harengus* L.) populations in the Northwest Atlantic. Paper presented at: Int. Counc. Explor. Sea, 73rd Stat. Meet.; Oct. 6-12, 1985; London.

Murawski, S.A., rapp. 1985. Summary: first Northeast Fisheries Center stock assessment workshop, 8-12 July 1985. Nat. Mar. Fish. Serv., Northeast Fish. Ctr.; Woods Hole, Mass. 28 pp.

Murawski, S.A., S.H. Clark, and V.C. Anthony. 1985. Impacts of fishery discards on stock size and yield calculations. Paper presented at: Int. Counc. Explor. Sea, 73rd Stat. Meet.; Oct. 6-12, 1985; London. 20 pp.

National Marine Fisheries Service, Northeast Fisheries Center, Conservation and Utilization Division. 1985. Status of the fishery resources off the northeastern United States for 1985. NOAA Tech. Mem. NMFS-F/NEC-42. 137 pp.

Ropes, J.W. 1985. Modern methods used to age oceanic bivalves. Nautilus 99(2-3): 53-57.

Rosenfield, A. 1985. Remarks of the chairman. Trans. 50th N. Am. Wildl. Nat. Resour. Conf.: 606-607.

Sawyer, T.K., E.J. Lewis, M.E. Galasso, J.J. Ziskowski, A.L. Pacheco, and S.W. Gorski. 1985. Gill blackening and fouling in the rock crab, *Cancer irroratus*, as an indicator of coastal pollution. Pages 114-129 *in* B. Ketchum, J. Capuzzo, W. Burt, I. Duedall, P. Park, and D. Kester, eds. Wastes in the ocean, vol. 6: near-shore waste disposal.

Serchuk, F.M., and S.E. Wigley. 1985. Evaluation of USA and Canadian research vessel surveys and survey design in assessing abundance, size composition, and recruitment of sea scallops on Georges Bank. Northwest Atl. Fish. Organ. Sci. Counc. Res. Doc. 85/88. 24 pp.

Silvermann, M.S. 1985. Distribution, abundance, and production estimates of yellowtail flounder, *Limanda ferruginea*, larvae off northeastern United States, 1982-1984. Int. Counc. Explor. Sea Comm. Mem. 1985/L:18.

Smith, W., and W. Morse. 1985. Seasonal distribution, abundance, and diversity patterns of fish eggs and larvae in the Middle Atlantic Bight. Int. Counc. Explor. Sea Comm. Mem. 1985/L:27.

Smolowitz, R.J., F.M. Serchuk, J. Nicolas, and S.E. Wigley. 1985. Performance of an offshore scallop survey dredge equipped with rock chains. Northwest Atl. Fish. Organ. Sci. Counc. Res. Doc. 85/99. 29 pp.

Stewart, M.E., and W. Blogoslawski. 1985. Effect of selected chlorine-produced oxidants on oyster larvae. Pages 521-532 *in* R. Jolley, R. Bull, W. Davis, S. Katz, M. Roberts, Jr., and V. Jacobs, eds. Water chlorination -- chemistry, environmental impact, and health effects, vol. 5, chap. 41.

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

NOVEMBER 1985

IN THIS ISSUE:

The Northeast Fisheries Center's *Monthly Highlights* is a selection of brief popularized accounts of Center research activities during the month. These accounts focus on practical applications of research findings to fisheries resource and habitat management. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center

ADMINISTRATION

Center Director.....Allen E. Peterson, Jr.
Deputy Center Director.....Dr. John B. Pearce
Conservation and Utilization Division Chief.....Dr. Vaughn C. Anthony
Fisheries Ecology Division Chief.....Dr. Michael P. Sissenwine
Environmental Processes Division Chief (Acting).....Dr. Robert A. Murchelano
National Systematics Laboratory Director.....Dr. Bruce B. Collette
Research Planning and Coordination Staff Chief.....Richard C. Hennemuth
Program Support Staff Chief (Acting).....Dr. Norris B. Jeffrey

LABORATORIES

Woods Hole Laboratory
National Marine Fisheries Service, NOAA
Water St.
Woods Hole, MA 02543
(617) 548-5123 & FTS 840-1011
Officer-in-Charge: Dr. Marvin D. Grosslein

Gloucester Laboratory
National Marine Fisheries Service, NOAA
Emerson Ave.
Gloucester, MA 01930
(617) 281-3600 & FTS 837-9276
Officer-in-Charge: Robert J. Learson

Narragansett Laboratory
National Marine Fisheries Service, NOAA
So. Ferry Rd.
Narragansett, RI 02882
(401) 789-9326 & FTS 838-7142
Officer-in-Charge: Dr. Kenneth Sherman

Milford Laboratory
National Marine Fisheries Service, NOAA
212 Rogers Ave.
Milford, CT 06460
(203) 783-4200 & FTS 642-5200
Officer-in-Charge: Dr. Anthony Calabrese

Sandy Hook Laboratory
National Marine Fisheries Service, NOAA
P. O. Box 428
Highlands, NJ 07732
(201) 872-0200 & FTS 342-8200
Officer-in-Charge: Anne L. Studholme

National Systematics Laboratory
National Marine Fisheries Service, NOAA
National Museum of Natural History
10th & Constitution Ave., N.W.
Washington, DC 20560
(202) 357-2552 & FTS 357-2552
Director: Dr. Bruce B. Collette

Oxford Laboratory
National Marine Fisheries Service, NOAA
Railroad Ave.
Oxford, MD 21654
(301) 226-5193
Officer-in-Charge: Dr. Aaron Rosenfield

BANNER YEAR FOR SURF CLAM AND OCEAN QUAHOG HARVESTS

The ocean quahog fishery is headed towards a record harvest. The 1985 quota began at 4.4-million bushels. However, cumulative landings through mid-November are 12 percent above the rate that achieves this quota level. The quota has now been increased to 4.9-million bushels and effort has been decreased from seven to five days of allowable fishing per week. Even with the increased quota and decreased effort, the large landings may force an early closure to the year's fishery.

The Mid-Atlantic surf clam fishery (New York and south) is also headed towards a possible early closure. The 1985 quota is 2.65-million bushels. A high landings rate has led to a temporary closure from June 23 through July 4, and to an effort restriction from six hours of allowable fishing per week to six hours every other week. Although cumulative landings through mid-November are 13 percent below the rate that achieves this quota level, the landings rate has further increased due to a lowering of the minimum size limit, effective November 10, from 5 1/4 to 5 inches shell height.

The Georges Bank surf clam fishery closed in July when the 300-thousand-bushel annual quota was met. The Nantucket Shoals surf clam fishery's cumulative landings are 26 percent below the 200-thousand-bushel annual quota. Contact William E. Brey, (301) 226-5420.

NORTHERN SHRIMP ASSESSMENT CONFIRMS GOOD PROSPECTS FOR WINTER FISHERY

In the August issue, we reported that observations during the August survey of northern shrimp distribution and abundance in the Gulf of Maine showed good prospects for the upcoming winter fishery. A subsequent stock assessment by the Atlantic States Marine Fisheries Commission's (ASMFC) Northern Shrimp Technical Committee noted a 30-percent increase between 1984 and 1985 in the abundance (by weight) index of shrimp. This increased abundance index stems largely from growth of the 1982 year class. This year class has accelerated the increasing trend in northern shrimp abundance since the late 1970's, and will contribute to good catches for the next two years.

On November 6, the ASMFC established a December 1 - May 31 fishing season -- the maximum allowable under existing ASMFC policy. This winter's catch should exceed last winter's 6.6 million pounds which were worth more than three-million dollars in ex-vessel prices to fishermen. Contact Dr. Stephen H. Clark, FTS 840-1312 or (617) 548-5123.

HERRING AGAIN FAIL TO SPAWN ON GEORGES BANK

Our 15th year of fish egg and larvae surveys in the Northwest Atlantic showed the once-productive spawning beds of Atlantic herring on eastern Georges Bank to be dormant for the seventh consecutive year. We found no larvae over the eastern half of the Bank in October, and only two larvae during November and December.

These results contrast sharply with those of the 1960's and early 1970's when our estimates of larval herring abundance over the Georges Bank spawning beds routinely exceeded four larvae per square foot of surface area, and occasionally exceeded 40 larvae. First evidence of the downturn in herring spawning on the Bank appeared in the mid-1970's. By 1979, we collected no larvae east of 68° W longitude. During the 1980's, herring larvae have been scarce to absent.

Our 23rd year of autumn bottom-trawl surveys of finfish and squid distribution and abundance in the Northwest Atlantic also confirmed the lack of herring spawning on eastern Georges Bank. We collected fewer than 10 adults there this past autumn.

As recently as 1975, almost 300 million pounds of herring were harvested on Georges Bank. Contact Wallace G. Smith, FTS 342-8260 or (201) 872-0200.

VIRUS MAY CONTRIBUTE TO BLUE CRAB DEATHS IN SHEDDING TANKS

Many dead and dying blue crabs from "shedding tanks" appear to have a virus which may contribute to their deaths. This observation occurred during a two-year cooperative study between the Center and the University of Maryland's Center for Environmental and Estuarine Studies. The cooperative study seeks to determine the cause and -- if possible -- develop a cure to the problem of excessive deaths of blue crabs while being held in flow-through or recirculating tanks for 10 or more days until they molt and become marketable as "soft-shelled" crabs.

Using light microscopy, we found 93 percent of our samples of dead or dying blue crabs that had been kept seven days or more in a recirculating system had signs of viral infections. Using electron microscopy on some of these same samples, we have confirmed the viral infections. After more samples have been subjected to electron microscopy, we should be able to better define the role of this virus in crab mortalities. Contact Dr. Phyllis T. Johnson, (301) 226-5193.

PROGRESS IN STUDY OF FISH OILS FOR FIGHTING HEART DISEASE

The NMFS Laboratories in Seattle, Charleston, and Gloucester have analyzed the composition of marine fish oils as part of a collaborative study designed ultimately to provide medical researchers with refined and standardized fish oils to be evaluated for their therapeutic effects in human heart disease. The initial results of the analysis appear comparable among the Laboratories, and following final statistical verification in December, will provide the quality assurance for the Gloucester Laboratory developing a "blueprint" for equipping facilities to produce pure fatty acids from marine fish oils. The purified fatty acids produced in this manner, rather than being tested directly in human feeding programs, will be tested indirectly in laboratory cellular experiments. Contact Judith Krzynowek, FTS 837-9226 or (617) 281-3600.

NEW BEDFORD FLOUNDERS WITH HIGH LEVELS OF LIVER DISEASE

While microscopically examining liver tissue from seven species of demersal fish collected along the Massachusetts coast, we found a significant numbers of the winter flounder from New Bedford's Clark Cove with areas of inflammed and dead liver tissue. This examination, a cooperative effort with the Massachusetts Division of Marine Fisheries, showed 42 percent of the flounders from the Cove to have liver lesions that could reasonably be interpreted to affect the health of these fish.

Fish from other areas along the Massachusetts coast had lower occurrences of such liver lesions. The species most affected, winter flounder, spends much of its time on the bottom within a relatively small territory, and the area in question, New Bedford, has bottom sediments with exceptionally high

concentrations of polychlorinated biphenyls or PCB's -- a known liver toxin. Contact Dr. Robert A. Murchelano, FTS 840-1263 or (617) 548-5123.

THAI ICHTHYOLOGIST TACKLES SYSTEMATICS STUDY OF INTEREST TO NMFS

Dr. Thosaporn Wongratana from Chulalongkorn University in Bangkok, Thailand, began a year-long Smithsonian Post-Doctoral Fellowship in November. Dr. Wongratana will work in a lab of the National Systematics Laboratory, revising his doctoral dissertation (University of London) on "Systematics of Clupeoid Fishes of the Indo-Pacific Region." This study is of particular interest to the Southwest Fisheries Center's Honolulu Laboratory because of the need to be able to identify bait fishes used in the tuna fishery of the Pacific islands. Many of the bait fishes are clupeoids, including herrings and anchovies, which are presently difficult to identify. Contact Dr. Bruce B. Collette, FTS/(202) 357-2552.

COMPUTER PROGRAM DEVELOPED TO AID PHYTOPLANKTON MEASUREMENTS

The Center has developed a computer program which saves time and aids accuracy in determining the kinds and amounts of chlorophyll pigments in seawater samples. Knowing the kinds and amounts of chlorophyll pigments permits the estimation of phytoplankton biomass -- the basis of marine food chains.

The computer program, written in the IBM Basic language, uses the "P.S." formula (part of the popular spectrophotometric procedure published in *A Practical Handbook of Seawater Analysis* by Strickland and Parsons in 1977) for pigment determinations. Computations of the formula are reduced from hours to minutes. The program also prompts the user for appropriate information, thus permitting use of the program by inexperienced personnel and reducing chances of errors in the final results. Contact Dr. Ravenna Ukeles, FTS 642-5223 or (203) 783-4223.

RECREATIONAL FISHERIES AND ENVIRONMENT DISCUSSED AT WALFORD CONVOCATION

The Center's Sandy Hook Laboratory recently held its seventh annual Lionel A. Walford Memorial Convocation. Theme of the Convocation was "Recreational Fisheries and the Environment -- Past, Present, and Future." U.S. Senator Frank Lautenberg keynoted the proceedings with his views on federal legislation dealing with fisheries management, and with his desire for maintaining federal facilities for marine fisheries research in New Jersey. Other speakers included Hal Lyman of *Salt Water Sportsman*, Christopher Weld of the National Coalition for Marine Conservation, Frank Daiber of the University of Delaware, and John Boreman of the Northeast Fisheries Center. The American Littoral Society and the New Jersey Marine Sciences Consortium cosponsored the program. Contact Anthony L. Pacheco, FTS 342-8290 or (201) 872-0200.

CENTER LIBRARIAN ELECTED PRESIDENT OF MARINE LIBRARY ASSOCIATION

The librarian of the Center's Woods Hole Laboratory, Judith Brownlow, was elected President of the International Association of Marine Science Libraries and Information Centers at that organization's annual meeting in Williamsburg, Virginia, during October 14-18. The 11-year-old organization includes 160 libraries from 17 countries, and promotes the exchange of information among such institutions. Contact Jon A. Gibson, FTS 840-1228 or (617) 548-5123.

Barnlow

NORTHEAST FISHERIES CENTER

MONTHLY HIGHLIGHTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Northeast Fisheries Center
Woods Hole, Massachusetts 02543

DECEMBER 1985

IN THIS ISSUE:

The Northeast Fisheries Center's *Monthly Highlights* is a selection of brief popularized accounts of Center research activities during the month. These accounts focus on practical applications of research findings to fisheries resource and habitat management. The name and telephone number of a Center scientist has been included at the end of each account to contact for more information.

EUROPEAN FISH STOCKS ON RISE; MIXED EFFECTS ON U.S. MARKETS

The outlook is good for several fish stocks in the Northeast Atlantic, notably the North-East Arctic cod stock and the Norwegian spring-spawning stock of Atlanto-Scandian herring. These assessments come from a recent meeting of the International Council for the Exploration of the Sea's Advisory Committee on Fishery Management.

An improved North-East Artic cod stock could have a mixed effect on U.S. markets. Norway, which obtains the bulk of her cod harvest from the North-East Arctic stock, was once the largest and still is a significant exporter of frozen cod blocks to the United States (i.e., 10 million pounds of frozen cod blocks as well as four million pounds of frozen cod fillets in 1984). In the next 3-4 years, she will have more frozen blocks and frozen fillets to export here. An increased supply of Norwegian blocks could lower the cost of supplies to U.S. firms which import these blocks to produce fish sticks and portions. (The recently declining U.S.-foreign exchange rate could nullify this advantage, though.)

Canada, a major exporter of both frozen cod blocks and fillets to the United States and Europe, may be prompted by the improved North-East Arctic cod stock to divert even more of her cod catch into the major markets for New England finfish -- fresh filleted and whole cod and other groundfish. Contact Dr. Fredric M. Serchuk, FTS 840-1245 or (617) 548-5123, for biological information, or Mikolaj Wojnowski, FTS 840-1348 or (617) 548-5123, for economic information.

COD JOIN HADDOCK WITH LARGE YEAR CLASS ON GEORGES BANK

In the October issue, we reported that the 1985 year class of Georges Bank haddock is large. Our continuing analysis of the data from our autumn research vessel survey of the Northwest Atlantic's fish populations has shown that the 1985 year class of Georges Bank cod may also be large. The survey yielded the second highest number of young-of-the-year cod since the surveys began in 1963. Only the number of young fish in 1975 exceeded the number in 1985.

Determining year-class sizes based on survey catches of young-of-the-year fish is not as certain for cod as it is for haddock. We will carefully monitor catches of 1985-year-class cod in the upcoming spring and autumn 1986 surveys in order to substantiate the results of the autumn 1985 survey. Based on our autumn 1985 survey values, though, the 1985 year class could eventually rejuvenate the sagging U.S. cod catch which -- according to preliminary data -- dropped in 1985 to a seven-year low of 80 million pounds. Contact Dr. Fredric M. Serchuk, FTS 840-1245 or (617) 548-5123.

WEAK 1985 YEAR CLASS OF CHESAPEAKE BAY STRIPED BASS

Water quality for most of the striped bass spawning grounds in Chesapeake Bay appeared adequate for larval survival in 1985. However, young-of-the-year stripers were scarce this year, indicating poor reproduction during the 1985 season. The State of Maryland's annual young-of-the-year (YOY) index, which is based on a survey with beach seines, was only 2.9 young stripers per seine haul. This 1985 index is lower than the 1984 index (4.2 fish per haul) and is only 9.4 percent of the highest index in the survey's history (30.4 fish per haul in 1970). These findings emerged from a December 10-11 Striped Bass Workshop which was sponsored by the Atlantic States Marine Fisheries

Commission.

Workshop findings also included further documentation on the size of the 1982 year class. That year class had the highest YOY index (8.4 fish per haul) since 1974, although it was not exceptional compared to the long-term average of 8.9 fish per haul. No quantitative information on the current abundance of the 1982 year class is available, however qualitative reports indicate that it remains the largest year class in recent years. Current management measures are aimed at protecting this and subsequent year classes to rebuild the spawning stocks. Contact Dr. R. Anne Richards, FTS 840-1357 or (617) 548-5123.

ROCK SHRIMP MONOGRAPH PUBLISHED

A monograph on the 12 species of rock shrimps (genus *Sicyonia*) occurring in the American Pacific has been published in the NMFS *Fishery Bulletin*. Until a few years ago, rock shrimps were discarded from the large commercial catches of penaeoid shrimps made in both the Eastern Pacific and Western Atlantic. It was formerly thought that, because of their hard shells, they would be rejected by consumers and the processing industry; however, increased demand for shrimp and new technology encouraged the fishermen and dealers to bring the larger of these species to market, and now the production is readily absorbed. Two species are well known: the ridgeback prawn (*S. ingentis*) on the West Coast and the brown rock shrimp (*S. brevirostris*) on the East Coast.

The monograph is based on the study of over 4,500 specimens. It contains a key to the species together with descriptions and color notes -- color pattern being invaluable for field identification. Maps of the range of each species (eight of which are extended beyond limits previously reported) are included, as well as information on reproduction, habitat, and indication of present or potential economic value. Contact Dr. Isabel Canet (Perez Farfante), FTS/(202) 357-1417.

UPDATE ON FISHERY PRODUCT PRESERVATION RESEARCH

Under experimental conditions, potassium sorbate significantly increased the shelf life of flounder fillets held on ice under refrigeration. The increased shelf life occurred both for fillets held in retail-like conditions and for fillets held in-plant or bulk-retail conditions.

In a different experiment to measure the natural loss of liquids from fillets during storage ("drip loss"), commercial quality flounder fillets showed more than a seven percent loss in weight after 12 days of storage in plastic containers surrounded by ice. "Market"-sized cod fillets showed about a three percent loss of liquids by weight after 11 days. Contact Vincent G. Ampola, FTS 837-9258 or (617) 281-3600, for potassium sorbate information, and Joseph M. Mendelsohn, FTS 837-9282 or (617) 281-3600, for drip-loss information.

MODEL DEVELOPED TO EVALUATE DREDGING RESTRICTIONS ON OYSTER REPRODUCTION

A recent workshop involving several state and federal agencies, including the National Marine Fisheries Service, and several academic institutions produced a model which evaluates channel-dredging restrictions on Chesapeake Bay oyster production. In assisting in development of the model, the Center stated that the major problem of channel dredging was the silting of oyster seed beds and consequent reduction of juvenile oyster abundance. Such silting

comes from the stirring of silt by the dredge's cutterhead, the leaking of silt between the dredge's pipe sections, and the spilling of silt-laden water over onshore levees.

The U.S. Army Corps of Engineers stated that the new design of suction dredge retains most silt and minimizes the silting problem. Contact Clyde M. MacKenzie, Jr., FTS 342-8200 or (201) 872-0200.

1978 YEAR CLASS CONTRIBUTING TO GULF OF MAINE REDFISH LANDINGS

During 1983 and 1984, landings of relatively small redfish increased substantially in the Gulf of Maine fishery despite a general decrease in overall redfish landings. The Center's autumn bottom-trawl surveys have consistently detected these fish in the inshore Gulf of Maine since the late 1970's, but 1983 was the first year that these fish recruited to the fishery. Age determinations of commercially landed redfish show these fish, which range from 8 to 11 inches, to be members of the 1978 year class.

Our analyses of the age composition of commercial landings suggest that the 1978 year class comprised 20 percent of total landings by numbers in 1983, and almost 50 percent in 1984. This pattern of recruitment is similar to that observed during 1976 and 1977 for the previously dominant 1971 year class. Our population-size analyses, however, indicate that the 1978 year class is only one-fourth as large as the relatively strong 1971 year class which has been supporting the Gulf of Maine fishery during the late 1970's and early 1980's. Prospects for further recruitment remain poor at least through 1990. Contact Ralph K. Mayo, FTS 840-1310 or (617) 548-5123.